

**Listing of Claims:**

**This listing of claims replaces all prior versions and listings of claims in the application.**

1. (Original) A method for preparing a porous SOG film comprising the steps of preparing a solution containing an organic silane, water and an alcohol, subjecting said organic silane to acid hydrolysis or alkali hydrolysis and then heat-treating a resulting reaction system in the presence of a surfactant to thus form a porous SiO<sub>2</sub> film.
2. (Original) The method for preparing a porous SOG film as set forth in claim 1 wherein said method further comprises the step of repeating, at least one time, said first step for preparing said porous SiO<sub>2</sub> film to thus form, in order, an additional porous SiO<sub>2</sub> film on said porous film prepared in said first step.
3. (Original) The method for preparing a porous SOG film as set forth in claim 2 wherein said method further comprises a second step in which either of a SiO<sub>2</sub> film, a SiN<sub>x</sub> film and a SiO<sub>x</sub>N<sub>y</sub> film is formed on said porous SiO<sub>2</sub> film prepared in said first step by a CVD or sputtering method to thus cap the surface of said porous film and a step of repeating said first and second steps at least one time to form a multilayered film.

4. (Original) The method for preparing a porous SOG film as set forth in claim 1 wherein after forming said porous SiO<sub>2</sub> film, either of a SiO<sub>2</sub> film, a SiN<sub>x</sub> film and a SiO<sub>x</sub>N<sub>y</sub> film is formed on the surface of said porous SiO<sub>2</sub> film by a CVD or sputtering method to thus cap the surface of said porous film and to thus form a porous SiO<sub>2</sub> film.

5. (Original) The method for preparing a porous SOG film as set forth in claim 1 wherein after forming said porous SiO<sub>2</sub> film, unreacted OH groups remaining in said SiO<sub>2</sub> porous film are removed by subjecting said porous SiO<sub>2</sub> film to either of an oxygen plasma-treatment, an electron beam-irradiation and a UV light-irradiation treatment to thus form a porous SiO<sub>2</sub> film.

6. (Original) The method for preparing a porous SOG film as set forth in claim 1 wherein said heat-treatment comprises a first heat-treating step carried out at a temperature sufficient for mainly evaporating said water and alcohol present in a reaction system and a second heat-treating step carried out at a temperature sufficient for covering at least inner walls of holes present in a resulting porous SiO<sub>2</sub> film with hydrophobic moieties of surfactant, said temperature used in said second step being higher than that used in said first step.

7. (Original) The method for preparing a porous SOG film as set forth in claim 6 wherein said second heat-treating step is carried out at temperatures ranging from 350 to 450 °C.

8. (Original) A method for preparing a porous SOG film comprising the steps of mixing an organic silane, water, an alcohol and an acid or an alkali, adding a surfactant to a mixture thereof to prepare an organic silane solution, spin-coating said organic silane solution on a semiconductor substrate to obtain a coated layer and then heat-treating said coated layer to evaporate said water, alcohol and surfactant and to thus form a porous  $\text{SiO}_2$  film.

9. (Original) The method for preparing a porous SOG film as set forth in claim 8 wherein said method further comprises the steps of forming either of a  $\text{SiO}_2$  film, a  $\text{SiN}_x$  film and a  $\text{SiO}_x\text{N}_y$  film on the surface of said porous  $\text{SiO}_2$  film obtained after said heat-treatment by a CVD or sputtering method to thus cap the surface of said porous film and then repeating said heat-treating and capping steps at least one time to form a multilayered film.

10. (Original) The method for preparing a porous SOG film as set forth in claim 8 wherein after forming said porous  $\text{SiO}_2$  film, either of a  $\text{SiO}_2$  film, a  $\text{SiN}_x$  film or a  $\text{SiO}_x\text{N}_y$  film is formed on the surface of said porous  $\text{SiO}_2$  film by a CVD or sputtering method to thus cap the surface of said porous film and to thus form a porous  $\text{SiO}_2$  film.

11. (Original) The method for preparing a porous SOG film as set forth in claim 8 wherein after forming said porous  $\text{SiO}_2$  film, unreacted OH groups remaining in said porous film are removed by subjecting said porous film to either of an oxygen plasma-treatment, an electron beam-irradiation and a UV light-irradiation treatment to thus form a porous  $\text{SiO}_2$  film.

12. (Original) The method for preparing a porous SOG film as set forth in claim S wherein said heat-treatment is carried out in two stages: in a first stage, said porous film is treated at temperatures ranging from 200 to 350 °C to thus mainly evaporate said water and alcohol and in a second stage, said porous film is treated at temperatures ranging from 350 to 450 °C to thus finish formation of said porous film, while adhering hydrophilic moieties of surfactant to at least an inner surface of holes present in a resulting porous film and to thus cover inner walls of said holes with hydrophobic moieties of said surfactant, to thus form a porous SiO<sub>2</sub> film.

13. (Original) The method for preparing a porous SOG film as set forth in any of claims 1 to 12 wherein said organic silane is a hydrolyzable organic oxysilane and said surfactant is a cationic surfactant.

14. (Currently Amended) The method for preparing a porous SOG film as set forth in any of claims 1 to 12 wherein said organic silane is ~~TEOS~~ tetraethoxy silane or ~~TMOS~~ tetramethoxy silane and said surfactant is a halogenated alkyl ~~trimethyl~~ trimethyl ammonium type cationic surfactant such as lauryl trimethyl ammonium chloride, n-hexadecyl trimethyl ammonium chloride, alkyl trimethyl ammonium bromide, cetyl trimethyl ammonium chloride, cetyl trimethyl ammonium bromide, stearyl trimethyl ammonium chloride, alkyl dimethyl ethyl ammonium chloride, alkyl dimethyl ethyl ammonium bromide, cetyl dimethyl ethyl ammonium bromide, dimethyl ethyl octadecyl ammonium bromide or methyldodecyl benzyl trimethyl ammonium chloride.

Response under 37 C.F.R. §1.111  
Attorney Docket No. 011610  
Serial No. 09/926,671

15. (Original) The method for preparing a porous SOG film as set forth in any of claims 1 to 14 wherein said water, acid or alkali and surfactant are used in amounts ranging from 8 to 15 moles, 0.5 to 1.5 mole and 0.1 to 0.4 mole, respectively, per one mole of said organic silane.